



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/779,691 02/07/01 ISHIWA

M SANWA1.001AU

EXAMINER

020995 MMC2/1113
KNOBBE MARTENS OLSON & BEAR LLP
620 NEWPORT CENTER DRIVE
SIXTEENTH FLOOR
NEWPORT BEACH CA 92660

ART UNIT

PAPER NUMBER

DATE MAILED:

11/13/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/779,691

Applicant(s)

ISHIWA ET AL.

Examiner

Quynh-Nhu H. Vu

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bregman et al. [US 5,786,986] in view of Abolafia et al. [US 3,795,047].

Bregman et al. disclose in Figs. 1-2 a multilayer circuit board having a multilayer structure of a plurality of printed wiring boards including at least a first printed wiring board (4) and a second printed wiring board (6); wherein each of the first printed wiring board and the second printed wiring board includes a metal core substrate (12) having a first major (17, 22) and a second major surface (20, 24) which are opposite and parallel to each other and each of which major surfaces is covered with an electrically insulating layer (18); a conductive printed wiring layer (34, 44) formed on the surface of the electrical insulating layer; a local bonding (42) includes a plurality of metal projections; wherein the projections being formed on the first major surface and/or second major surface so as to be integral with the metal core substrate and to provide an air gap (46) between the adjacent printed wiring boards in the multilayer structure; wherein the conductive printed wiring layer (34, 44) formed on the electrical insulating layer includes a plurality of wiring lines on the first major surface of the metal core substrate. Bregman et al. further disclose the metal core substrate comprises at least one aperture (40) formed through and between the first and second major surfaces to form a through-hole; and

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the conductive printed wiring layer includes a through hole conductive portion on an inner surface of the aperture.

Bregman et al. does not disclose a solder resist layer covering the surface of the conductive printed wiring layer.

Abolafla et al. disclose in Figs. 4-5 a solder resist layer (17) covering the surface of the conductive printed wiring layer.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ the solder resist layer, as taught by Abolafla et al., for the benefit of protecting the surface of the conductive printed wiring layer.

It is noted that the product-by-process limitations "by plating"; "press forming" and "etching treatment" of claims 4-5 and 7-8 have not been give weight in determining the patentability of the device claim. See MPEP §2113.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kyougoku et al. [US 5,995,379], Burgess et al. [US 4,803,450], Tamburro [US 4,155,321], Crepeau [US 4,249,302], Lunine [US 3,436,819], Ryan [US 3,606,677] disclose(s) a core substrate; a conductive printed wiring layer and an insulating layer formed on the surface; a bonding for mechanically bonding together a pair of the printed wiring boards.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quynh-Nhu H. Vu whose telephone number is 703-305-0850. The examiner can normally be reached on 7:30-5:00 (M-F).

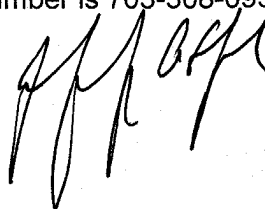
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 703-308-3301. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A handwritten signature in black ink, appearing to be 'J. Gaffin', is written over the text of the paragraph.

QNV
November 6, 2001